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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,655	10/27/2003	Hsien-Chang Lin	JCLA8714	4053

7590

06/27/2006

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EXAMINER

THOMPSON, CAMIE S

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/695,655	Applicant(s) LIN ET AL.	
	Examiner Camie S. Thompson	Art Unit 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed 4/18/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-12 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-12 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's amendment and accompanying remarks filed April 18, 2006 have been acknowledged.
2. Examiner acknowledges amended claim 1.

Claim Objections

3. Claim 8 is objected to because of the following informalities: The term "alkyl" is misspelled. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-6, 8-12 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 is rendered indefinite because it is unclear as to whether or not B and C are attached to either the cyclohexene or naphthalene as a separate group or fused onto the cyclohexene or naphthalene as it is now recited.

Claim Rejections - 35 USC § 102

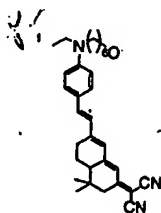
6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-6 and 8-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Jen et al., "Polyquinolines: Multifunctional Polymers for Electro-optic and Light-Emitting Applications".

The reference discloses the use of a non-linear optical chromophore with the following structure



The structure listed above and found in the reference reads on compound represented in the instant claims when B and C are cyano; A is a substituted cyclohexene and Z is an electron donating group, -N(ethyl) (CH₂)₆-O per instant claims 1-3. The chromophore can be used in the luminescent layer of a light emitting device that comprises an indium tin oxide substrate on to a top electrode (see page 473). Additionally, the reference discloses that CuPc is used in the hole injection/transport layer (see page 476). Also, page 477 of the reference discloses a multilayer

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light emitting diode comprising a cathode. Figures 5 and 6 on page 477 of the reference disclose Alq_3 in the organic electroluminescent layer. An electron-transporting layer is disclosed in the reference on page 476. The reference also discloses that the organic electroluminescent layer can comprise an aromatic amine such as TPD. The reference discloses optical thin films of the polyquinolines have a thickness in the range of 1-2 μm (see page 473). Instant claim 1 recites an electron donating group. Instant claim 1 does not limit the size of the electron donating group. Therefore, the reference reads on the instant claims when the -N(ethyl) $(\text{CH}_2)_6\text{-O}$ (the electron donating) group is attached as a side chain because instant claim 1 does not limit the size of the electron donating group. Also, the reference reads on instant claim 8 because the claim recites that the unsubstituted alkyl has 1 to 10 carbons. The size of the electron-donating group in instant claim 8 is not limited to 1 to 10 carbon atoms.

Response to Arguments


8. Applicant's arguments with respect to the instant claims have been considered but are moot in view of the new ground(s) of rejection. The Jen et al reference was reconsidered because instant claims 1 and 8 do not limit the size of the electron donating group. As amended, instant claim 1 is remains indefinite because it is unclear as to whether or not B and C (electron withdrawing groups) are separate groups or fused to the naphthalene or cyclohexene.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If

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attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L Dye, can be reached at (571) 272-3186. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


RENA DYE
SUPERVISORY PATENT EXAMINER
A.U. 1774 6/21/06